

The Estimate Simulation about the Lava flow Damage at Unzen Fugendake

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Japan is the eminent volcanic country in the world, and in present Suwanosejima in Kagoshima and Mt.Kusatu-hakone in Gunma emit fumes. In the past, the large-scale volcanism occurred in Sakurajima and Unzen Fugendake. Then, 10 percent of the whole earth is released as the earthquake and the volcano eruption in Japan. As that countermeasure, Volcano Eruption Prediction communication meeting in the Meteorological Agency is promoting the service of the hazard mapping.

Therefore we think that the predict of the damage range of ejecta lava flow is very important. To confirm visually the damage range of ejecta ,we express the simulation result with the three dimension with the elapsed time. Also, we abridge the processing time to make a simulation deal correspond to the urgent situation quickly.

We describe a simulation way easily. At first, we use the Digital Map of The Ministry of Construction country geography board, this is elavation data in each 25m*25m mesh, and we give first ejection quantity. This ejection quantity fundamentally spread to the mesh the altitude is lower with influence of the directional of the flow with the elapsed time. The meshes which are situated on the crater are given the extrusion rate at any time, and in time the supply reaches the amount of ejection quantity the supply stop. After the supply end, the simulation finishes with the computation of all mesh end. Then we express the simulation result with the three dimension using OpenGL. The observer can view the state the damage range expands with the elapsed time from the various angles. Because the amount of ejection quantity and the viscosity and so on is not fixed and the predict is extremely difficult, we think the precise fluid computation is not the perfect predict. Therefore we simulate with simply computation and technique for the high-speed processing. So we think this simulation copes with an emergency.